HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
Fort Collins, Colorado 80527-2400

Attorney Docket No.: 200401879-1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s):	Zhichen XU et al.	**Confirmation No.:**	4289
Serial No.:	10/767,285	**Examiner:**	Faruk Hamza
Filed:	January 30, 2004	**Group Art Unit:**	2455

Title: SELECTING NODES CLOSE TO ANOTHER NODE IN A NETWORK USING LOCATION INFORMATION FOR THE NODES

MAIL STOP APPEAL BRIEF - PATENTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF - PATENTS

Sir:

This is an Appeal Brief in connection with the decisions of the Examiner in a Final Office Action mailed April 16, 2009, and in connection with the Notice of Appeal filed on July 9, 2009.

It is respectfully submitted that the present application has been more than twice rejected.

Each of the topics required in an Appeal Brief and a Table of Contents are presented herewith and labeled appropriately.

TABLE OF CONTENTS

(1) Real Party in Interest

The real party in interest is Hewlett-Packard Development Company, L.P.

(2) Related Appeals and Interferences

An Appeal Brief was filed on April 21, 2009, in related application serial number 10/960,605. The status of that appeal is an Examiner's Answer has not been sent to the Appellants.

(3) Status of Claims

Claims 1-17 and 21-23 are pending in the present application and stand rejected. Claims 1-17 and 21-23 are appealed. Claims 18-20 and 24-26 are canceled.

(4) Status of Amendments

No amendment was filed subsequent to the Final Office Action dated April 16, 2009.

A copy of the claims at issue on appeal is attached as the Claims Appendix.

(5) Summary of Claimed Subject Matter

Independent claims 1, 14 and 21 are the independent claims on appeal. Support for these claims is at least provided in the following cited sections of the Appellants' specification.

1. (Previously Presented) A method of identifying at least one node close to a first node in a network, the method comprising:

selecting a set of candidate nodes from a plurality of nodes based on location information for the candidate nodes and the first node, wherein the selection is made based on comparing distances from each of the first node and the plurality of nodes to each one of a plurality of global landmark nodes; See page 25, line 22-page 26, line 7, and step 803 in figure 8.

applying a clustering algorithm to the location information for the candidate nodes and the first node; and See page 26, lines 8-12 and step 804 in figure 8.

identifying a subset of the set of candidate nodes closest to the first node based on results of applying the clustering algorithm. See page 26, lines 8-12 and step 804 in figure 8.

14. (Previously Presented) A node in a network comprising:

means for selecting a set of candidate nodes from a plurality of nodes based on location information for the candidate nodes and a first node, wherein the selection is made based on comparing distances from each of the first node and the plurality of nodes to each one of a plurality of global landmark nodes; See node 900 in figure 9 and page 28, lines 8-23; see page 25, line 22-page 26, line 7, and step 803 in figure 8.

means for applying a clustering algorithm to the location information for the candidate nodes and the first node; and See node 900 in figure 9 and page 28, lines 8-23; and see page 26, lines 8-12 and step 804 in figure 8.

means for identifying a subset of the set of candidate nodes closest to the first node based on the results of applying the clustering algorithm. See node 900 in figure 9 and page 28, lines 8-23; and see page 26, lines 8-12 and step 804 in figure 8.

21. (Previously Presented) Computer software embedded on a tangible computer readable medium, the computer software comprising instructions performing: See figure 9 and page 28, lines 12-23.

selecting a set of candidate nodes from a plurality of nodes based on location information for the candidate nodes and a first node, wherein the selection is made based on comparing distances from each of the first node and the plurality of nodes to each one of a plurality of global landmark nodes; See page 25, line 22-page 26, line 7, and step 803 in figure 8.

applying a clustering algorithm to the location information for the candidate nodes and the first node; and See page 26, lines 8-12 and step 804 in figure 8.

identifying a subset of the set of candidate nodes closest to the first node based on the results of applying the clustering algorithm. See page 26, lines 8-12 and step 804 in figure 8.

(6) Grounds of Rejection to be Reviewed on Appeal

A. Whether claims 1-17 and 21-23 were properly rejected under 35 U.S.C. §112 second paragraph.

B. Whether claims 1, 2, 10-17 and 21-22 were properly rejected under 35 U.S.C. §102(e) as being allegedly anticipated by U.S. Patent No. 7,020,698 to Andrews.

C. Whether claims 3-9 and 23 were properly rejected under 35 U.S.C. §103(a) as being allegedly unpatentable over Andrews and in view of U.S. Patent Application Publication No. 2004/0054807 to Harvey.

(7) Arguments

A. The rejection of claims 1-17 and 21-23 under 35 U.S.C. §112 second paragraph should be reversed

Claims 1-17 and 21-23 are rejected under 35 U.S.C. §112 2nd paragraph. In particular, the rejection states that "comparing distance from each of the first node" as recited in claim 1, line 5 is unclear because it implies there is more than one first node.

Claim 1, lines 5-7 recite, "wherein the selection is made based on comparing distances from each of the first node and the plurality of nodes to each one of a plurality of global landmark nodes." Thus, "each" clearly refers to each distance between the first node and the plurality of nodes and the global landmark nodes. A similar recitation is provided in independent claims 14 and 21. Thus, claims 1-17 and 21-23 are clear and definite, and the rejection should be reversed.

B. The rejection of claims 1, 2, 10-17 and 21-22 under 35 U.S.C. §102(e) as being anticipated by Andrews should be reversed

The test for determining if a reference anticipates a claim, for purposes of a rejection under 35 U.S.C. § 102, is whether the reference discloses all the elements of the claimed combination, or the mechanical equivalents thereof functioning in substantially the same way to produce substantially the same results. As noted by the Court of Appeals for the Federal Circuit in *Lindemann Maschinenfabrick GmbH v. American Hoist and Derrick Co.*, 221 USPQ 481, 485

(Fed. Cir. 1984), in evaluating the sufficiency of an anticipation rejection under 35 U.S.C. § 102, the Court stated:

> Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim.

Therefore, if the cited reference does not disclose each and every element of the claimed invention, then the cited reference fails to anticipate the claimed invention and, thus, the claimed invention is distinguishable over the cited reference.

Claims 1-2, 7-17 and 21-23 were rejected under 35 U.S.C. §102(e) as being allegedly anticipated by Andrews. This rejection is respectfully traversed for at least the following reasons. Claims 1, 14, and 21 are independent.

Claim 1 recites a method of identifying at least one node close to a first node in a network, the method comprising, inter alia:

> selecting a set of candidate nodes from a plurality of nodes based on location information for the candidate nodes and the first node, wherein the selection is made based on comparing distances from each of the first node and the plurality of nodes to each one of a plurality of global landmark nodes.

Andrews fails to teach these features. The Final Office Action, on page 12, asserts that Andrew's teaches creating a cluster based on a distance and selecting a content server based on distance from the cluster to the server. The Final Office Action asserts that this feature of Andrews is the claimed "selection is made based on comparing distances from each of the first

node and the plurality of nodes to each one of a plurality of global landmark nodes." A description of Andrews is first provided below, and then arguments are presented distinguishing Andrews from the claimed features.

Andrews discloses a client 52 makes a DNS request to a local DN server. The request is sent to the redirection server 56, and the server 56 sends an IP address of a content server to the client 52. See column 5, lines 37-44. Thus, it is assumed the rejection is asserting the claimed first node to be the client 52, since claim 1 recites identifying at least one closest node to the first node.

Andrews discloses that each content server includes monitoring software that periodically collects distance information for clients communicating with the server. See column 5, line 59-column 6, line 6. The distance information is sent to the redirection server 56, and clustering/mapping software 57 at the redirection server 56 determines clusters of clients using the distance information. Then, the clustering/mapping software 57 estimates network distance from each client cluster to each server.

As indicated above, the Final Office Action alleges the two-step process of Andrews comprising: (1) creating a cluster based on a distance and (2) selecting a content server based on distance from the cluster to the server is the claimed "selection is made based on comparing distances from each of the first node and the plurality of nodes to each one of a plurality of global landmark nodes."

The creation of clusters in Andrews comprises determining distances between the content servers and the clients communicating with the servers. The Final Office Action failed to

indicate the specific features of Andrews being relied upon as teachings of the claimed first node, plurality of nodes, and the global landmark nodes. As a result, the Appellants are left to speculate how the prior art is being applied to the claims, and the Final Office Action gives the appearance of improperly stretching the reference to include claimed features simply not taught by the reference. It is assumed the Final Office Action is asserting the clients in Andrews are the claimed first node and plurality of nodes, and the content servers of Andrews are the claimed global landmark nodes, and thus, Andrews discloses "comparing distances from each of the first node and the plurality of nodes to each one of a plurality of global landmark nodes" to create the clusters of client nodes.

Given this interpretation of Andrews, however, Andrews fails to teach "selecting a set of candidate nodes from a plurality of nodes based on location information for the candidate nodes and the first node." The Final Office Action interprets the claimed candidate nodes as the content servers of Andrews because Andrews selects a content server closest to the client 52 based on distance information. However, as described above, the Final Office Action must also be asserting the claimed plurality of nodes are the clients of Andrews. Thus, Andrews fails to teach "selecting a set of candidate nodes from a plurality of nodes," because the content servers of Andrews (*i.e.*, the claimed candidate nodes) are not selected from the client nodes of Andrews (*i.e.*, the claimed plurality of nodes). The client nodes are not content servers in Andrews, so the client nodes are selected from the content servers.

Furthermore, Andrews fails to teach applying a clustering algorithm to location information for selected candidate nodes and the first node. Instead, in Andrews, the clustering

is performed to determine a content server or content servers (see column 4, line 62) closest to a cluster. Thus, the clustering is performed to select the candidate content servers, and as a result, the clustering cannot be performed on selected candidate content servers (or on location information for selected servers), because the candidate servers have yet to be selected prior to performing the clustering.

Independent claims 14 and 21 each recite features similar to those discussed above for claim 1. Claim 14 recites "means for selecting a set of candidate nodes from a plurality of nodes . . . , wherein the selection is made based on comparing distances from each of the first node and the plurality of nodes to each one of a plurality of global landmark nodes." Claim 21 recites "selecting a set of candidate nodes . . ., wherein the selection is made based on comparing distances from each of the first node and the plurality of nodes to each one of a plurality of global landmark nodes." Thus, for at least the same reasons set forth earlier with respect to claim 1, Andrews fails to teach all of the features of independent claims 14 and 21 and their respective dependent claims and thus cannot anticipate these claims.

Accordingly, the rejection of claims 1-2, 7-17 and 21-23 should be reversed for failure to teach all the claimed features.

C. The rejection of claims 3-9 and 23 under 35 U.S.C. §103(a) as being unpatentable over Andrews in view of Harvey should be reversed.

The test for determining if a claim is rendered obvious by one or more references for purposes of a rejection under 35 U.S.C. § 103 is set forth in *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398, 82 USPQ2d 1385 (2007):

> "Under §103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented." Quoting *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1 (1966).

According to the Examination Guidelines for Determining Obviousness Under 35 U.S.C. 103 in view of *KSR International Co. v. Teleflex Inc.*, Federal Register, Vol. 72, No. 195, 57526, 57529 (October 10, 2007), once the *Graham* factual inquiries are resolved, there must be a determination of whether the claimed invention would have been obvious to one of ordinary skill in the art based on any one of the following proper rationales:

> (A) Combining prior art elements according to known methods to yield predictable results; (B) Simple substitution of one known element for another to obtain predictable results; (C) Use of known technique to improve similar devices (methods, or products) in the same way; (D) Applying a known technique to a known device (method, or product) ready for improvement to yield predictable results; (E) ''Obvious to try''—choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success; (F) Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations would have been predictable to one of ordinary skill in the art; (G) Some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention. *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398, 82 USPQ2d 1385 (2007).

Furthermore, as set forth in *KSR International Co. v. Teleflex Inc.*, quoting from *In re Kahn*, 441 F. 3d 977, 988 (CA Fed. 2006), "[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasonings with some rational underpinning to support the legal conclusion of obviousness."

Furthermore, as set forth in MPEP 2143.03, to ascertain the differences between the prior art and the claims at issue, "[a]ll claim limitations must be considered" because "all words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385.

If the above-identified criteria and rationales are not met, then the cited references fail to render obvious the claimed invention and, thus, the claimed invention is distinguishable over the cited references.

Claims 3-9 and 23 were rejected under 35 U.S.C. §103(a) as being allegedly unpatentable over Andrews in view of Harvey. Claims 3-9 depends from claim 1, and claim 23 depends from independent claim 21. Thus, for at least the same reasons set forth with respect to claims 1 and 21, Andrews fails to teach or suggest the above-recited features of claims 1 and 21.

Harvey fails to overcome the above-discussed deficiencies of Andrews. More specifically, the Office Action at page 8 relies on Harvey as showing features related to a distributed hash table overlay network recited in claim 3. However, such features of Harvey and the rest of Harvey's disclosure fail to teach or suggest the above-recited features of claim 1.

Thus, for at least the above-discussed reasons, the proposed combination of Andrews and Harvey fails to teach or suggest the above-discussed features of claim 1 and 21. Accordingly, the rejection of claims 3-9 and 23 should be reversed.

(8) Conclusion

For at least the reasons given above, the rejection of claims 1-17 and 21-23 described above and the objection to the Abstract described above should be reversed and these claims allowed.

Please grant any required extensions of time and charge any fees due in connection with this Appeal Brief to deposit account no. 08-2025.

Respectfully submitted,

Dated: September 9, 2009

By

Ashok K. Mannava
Registration No.: 45,301
(703) 652-3822

MANNAVA & KANG, P.C.
11240 Waples Mill Road
Suite 300
Fairfax, VA 22030
(703) 865-5150 (facsimile)

(9) Claim Appendix

1. (Previously Presented) A method of identifying at least one node close to a first node in a network, the method comprising:

selecting a set of candidate nodes from a plurality of nodes based on location information for the candidate nodes and the first node, wherein the selection is made based on comparing distances from each of the first node and the plurality of nodes to each one of a plurality of global landmark nodes;

applying a clustering algorithm to the location information for the candidate nodes and the first node; and

identifying a subset of the set of candidate nodes closest to the first node based on results of applying the clustering algorithm.

2. (Original) The method of claim 1, wherein selecting a set of candidate nodes comprises:

comparing location information for the plurality of nodes to the location information for the first node to select the set of candidate nodes from the plurality of nodes closest to the first node.

3. (Original) The method of claim 2, further comprising:

receiving the location information for the first node at a node in a distributed hash table overlay network, the distributed hash table overlay network being a logical representation of the network including the first node and the plurality of nodes; and

storing the location information for the first node at the node in the distributed hash table overlay network.

4. (Previously Presented) The method of claim 3, further comprising:

the first node hashing the location information for the first node to identify a location in the distributed hash table overlay network to store the location information for the first ~~node.~~

5. (Original) The method of claim 3, further comprising:

receiving the location information for the plurality of nodes at the node in the distributed hash table overlay network; and

storing the received location information for the plurality of nodes at the node in the distributed hash table overlay network.

6. (Original) The method of claim 5, further comprising:

retrieving the location information for the plurality of nodes and the first node from stored location information at the node in the distributed hash table overlay network; and

comparing the retrieved location information to select the set of candidate nodes proximally located to the first node from the plurality of nodes.

7. (Previously Presented) The method of claim 1, wherein the location information distances from each of the first node and the plurality of nodes to at least one local landmark node proximally located to a respective one of the first node and the plurality of nodes.

8. (Previously Presented) The method of claim 2, wherein comparing location information for the plurality of nodes to the location information for the first node comprises:

comparing global landmark vector portions of the landmark vectors for the first node and the plurality of nodes; and

selecting candidate nodes from the plurality of nodes having landmark vectors with a predetermined similarity to the landmark vector for the first node.

9. (Previously Presented) The method of claim 7, wherein the at least one local landmark node proximally located to a respective one of the first node and the plurality of nodes is on a routing path between the respective node and one of the plurality of global landmark nodes and within a predetermined distance to the respective node.

10. (Original) The method of claim 1, further comprising:

determining distances to each of the subset of candidate nodes from the first node; and

selecting a closest node to the first node from the subset of candidate nodes based on the determined distances.

11. (Original) The method of claim 1, further comprising:

selecting a node from the subset of nodes based on at least one of distances to each of the subset of candidate nodes from the first node and quality of service characteristics associated with the subset of nodes.

12. (Original) The method of claim 1, wherein the clustering algorithm is an algorithm operable to identify similarities between the location information for the first node and the candidate nodes.

13. (Original) The method of claim 12, wherein the clustering algorithm comprises at least one a min_sum, max_dif f, order, inner product algorithm, k-means, principal component analysis, and latent semantic indexing.

14. (Previously Presented) A node in a network comprising:

means for selecting a set of candidate nodes from a plurality of nodes based on location information for the candidate nodes and a first node, wherein the selection is made based on comparing distances from each of the first node and the plurality of nodes to each one of a plurality of global landmark nodes;

means for applying a clustering algorithm to the location information for the candidate nodes and the first node; and

means for identifying a subset of the set of candidate nodes closest to the first node based on the results of applying the clustering algorithm.

15. (Original) The node of claim 14, further comprising:

means for receiving the location information for the plurality of nodes and the first node; and

means for storing the location information for the plurality of nodes and the first node.

16. (Original) The node of claim 15, further comprising:

means for retrieving the location information for the plurality of nodes and the first node from the means for storing; and

means for comparing the location information for the plurality of nodes and the first node to select the candidate nodes.

17. (Original) The node of claim 14, further comprising means for transmitting a list of the subset of candidate nodes to the first node.

18-20. (Canceled).

21. (Previously Presented) Computer software embedded on a tangible computer readable medium, the computer software comprising instructions performing:

selecting a set of candidate nodes from a plurality of nodes based on location information for the candidate nodes and a first node, wherein the selection is made based on comparing distances from each of the first node and the plurality of nodes to each one of a plurality of global landmark nodes;

applying a clustering algorithm to the location information for the candidate nodes and the first node; and

identifying a subset of the set of candidate nodes closest to the first node based on the results of applying the clustering algorithm.

22. (Original) The computer software of claim 21, wherein instructions performing selecting a set of candidate nodes comprises:

comparing location information for the plurality of nodes to the location information for the first node to select the set of candidate nodes physically close to the first node.

23. (Previously Presented) The computer software of claim 21, wherein the location information comprises distances measured from each of the first node and the plurality of nodes to at least one local landmark node proximally located to a respective one of the first node and the plurality of nodes.

24-26. (Canceled).

(10) Evidence Appendix

None.

(11) Related Proceedings Appendix

None.